REMARKS

Claims 68-77, 80-85 and 107-115 were pending on the mailing date of the outstanding Office Action (September 8, 2006). Claims 68, 80, 82, 84 and 85 have been amended to clarify certain aspects of these claims, and claims 118-127 have been added in this paper. No claims have been cancelled in this paper. Therefore, claims 68-77, 80-85, 107-115 and 118-127 are pending in this application.

In the Office Action dated September 8, 2006, all of the previously pending claims were rejected under 35 U.S.C. § 112, first paragraph, on the grounds that independent claims 68, 80, 82, 84 and 85 did not comply with the written description requirement. More specifically, claims 68, 80, 82, 84 and 85 were amended in the applicants' previous response to recite that the annealing process induces electromigration, and the Examiner held that the basis for this new limitation was not apparent in the specification. Without commenting on or conceding to the merits of the outstanding rejection, and without prejudice to pursuing the previously pending claims in a continuation or other type of application, claims 68, 80, 82, 84 and 85 have been amended to include that the annealing process occurs after filling the recesses with copper and forming a copper overburden, but before subsequent chemical mechanical polishing processes to increase the grain size of the copper and electromigration resistance such that the conductivity of the deposited copper increases. These features are described and/or shown at, for example, page 15 (lines 3-15), page 16 (lines 10-15), and page 22 (lines 14-21). As a result, the applicants respectfully submit that claims 68, 80, 82, 84 and 85 are supported by the originally filed specification and request withdrawal of the outstanding Section 112 rejection.

Amended claims 68, 80, 82, 84 and 85 are also all patentable over the cited and/or applied references. For example, the applied references do not disclose the combination of applying a copper layer onto a workpiece such that the copper layer has a high initial sheet resistance, and then annealing the copper layer before removing the overburden portion and/or capping the copper layer in a manner that increases the grain sizes and

increases the electromigration resistance of the copper. One reason to anneal the copper before removing the overburden portion is that the copper grains grow better in thicker layers compared to thinner layers. The same grain growth, therefore, is not inherent if the copper is annealed after removing the overburden portion with a chemical mechanical polishing process. Additionally, any heating process after the copper has been capped also does not inherently produce the same grain growth because the copper is planarized before capping, and moreover capping the copper before annealing may cause the cap to trap voids in the copper and further restrict coalescence of the grain boundaries. Therefore, the applicants respectfully submit that the pending claims are patentable over the cited and applied references.

In light of the foregoing, all of the claims comply with Section 112 and are patentable over the cited references. The applicants accordingly request reconsideration of the application and respectfully submit that all of the pending claims are in condition for allowance. If Examiner Leader has any questions or believes a teleconference would expedite prosecution of this application, he is encouraged to contact the undersigned representative at (206) 359-3258.

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Respectfully submitted,

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